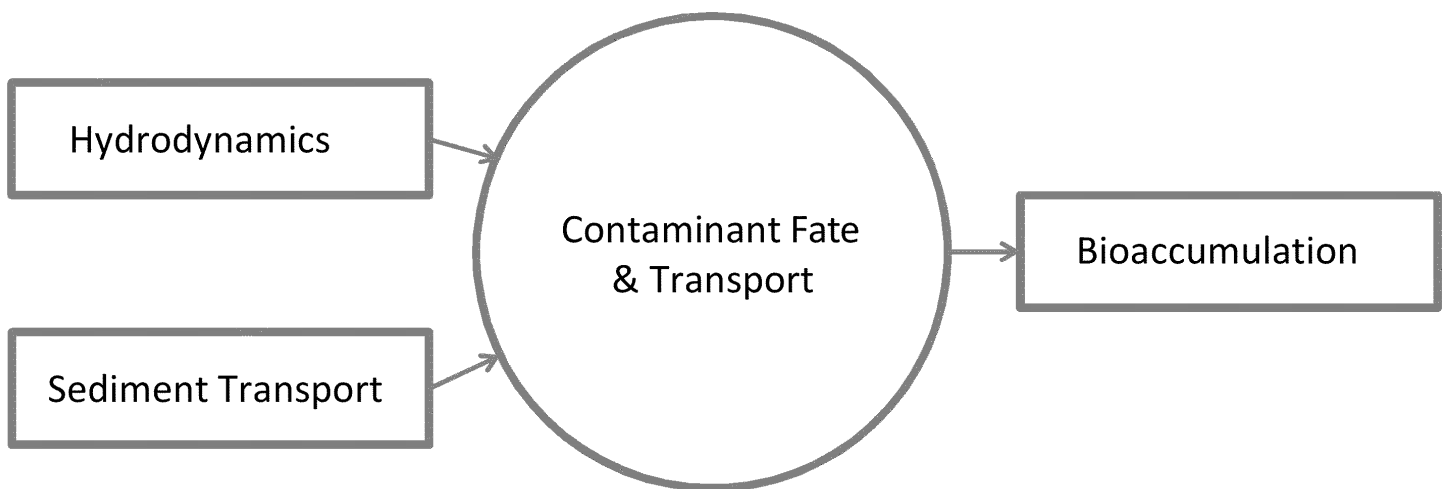


# Overview

- Developing models to estimate the effectiveness of remedial options subject to detailed analysis in the LPR Restoration Project Feasibility Study
- Centered on the need to predict fate and transport of chemicals significant to human health and ecological risk



# Critical Element

- Due to association with sediments, fate and transport of the chemicals largely controlled by sediment transport
- Sediment transport
  - Intra-tidal resuspension and deposition from an unconsolidated layer commonly termed the fluff layer
  - Sediment movement between the fluff layer and the underlying parent bed
  - Physical and biological mixing of the surface sediments in the parent bed
  - Erosion of the parent bed during high flow events
  - In-filling due to deposition of solids entering from upstream, tributaries and upstream tidal movement
  - Consolidation of recently deposited sediments

# Challenges

- Sediment transport and contaminant fate frameworks not seamlessly linked
  - Different assumptions about sediment transport and the manner in which the sediment bed is described
  - Imposition of a model of algal growth and death to account for particulate carbon generation and degradation
- Code development needed to refine fate model to include important processes
  - Fluff layer
  - Erosion/deposition matching predictions of sediment transport model

# Challenges Cont'd

- Computational constraints
  - ability to have sufficient resolution to represent major river features and simulation times that allow for calibration, projections and sensitivities
- Data gaps
  - Long-term water column COPC data
  - Boundary conditions
  - 1990s sediment COPC concentrations above RM 8
  - 1990s sediment data resolution in lower 8 miles
  - Long-term fish data

# Status

- Working model completed in Spring 2013
- Refinements underway to address:
  - Inconsistencies between sediment transport and fate models
  - Quality of the sediment transport calibration
  - Need for a fluff layer in contaminant fate model
  - Need to restrict desorption off resuspended sediments
  - Calibrate fate model to CWCM data and refined estimates of sediment trends from 1995 to 2012
  - Calibrate bioaccumulation model